kluwer graphicx

document article opening Galaxy Threshing and Ultra-Compact Dwarfs in the Fornax Cluster Michael D. Gregg, Michael J. Drinkwater, Michael J. Hilker,

Michael D. Gregg, et al. Ultra-Compact Dwarfs Univ. of California, Davis, and Inst. for Geophysics and Planetary Physics, Lawrence Livermore National Laboratory; Univ. of Queensland; Univ. Bonn; Univ. of Bristol; Univ. of Nottingham; & STScI

abstract We have discovered a new type of galaxy in the Fornax Cluster: "ultra-compact" dwarfs (UCDs). The UCDs are unresolved in ground-based imaging and have spectra typical of old stellar systems. Although the UCDs resemble overgrown globular clusters, based on VLT UVES echelle spectroscopy, they appear to be dynamically distinct systems with higher internal velocity dispersions and M/L ratios for a given luminosity than Milky Way or M31 globulars. Our preferred explanation for their origin is that they are the remnant nuclei of dwarf elliptical galaxies which have been tidally stripped, or "threshed" by repeated encounters with the central cluster galaxy, NGC1399. If correct, then tidal stripping of nucleated dwarfs to form UCDs may, over a Hubble time, be an important source of the plentiful globular cluster population in the halo of NGC1399, and, by implication, other cD galaxies. In this picture, the dwarf elliptical halo contents, up to 99% of the original dwarf luminosity, contribute a significant fraction of the populations of intergalactic stars, globulars, and gas in galaxy clusters.